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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,989	07/17/2003	Satoshi Murakami	0553-0372	2069

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EXAMINER
SANTIAGO, MARICELI

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 10/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/621,989	MURAKAMI ET AL.	
	Examiner	Art Unit	
	Mariceli Santiago	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/29/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The Amendment, filed on September 29, 2005, has been entered and acknowledged by the Examiner.

Claims 1-36 are pending in the instant application.

Priority

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6 and 25-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki et al. (US 2003/0162314).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any

invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, Yamazaki discloses a method of fabricating a light emitting device having a light emitting element having an anode (43), a layer containing an organic compound (46, 47, 48), which is in contact with the anode, and a cathode (49b) which is in contact with the layer containing an organic compound, the method comprising the steps of forming an anode (43), forming an insulating material (44) for covering end portions of the anode, washing a surface of the anode with a porous sponge (Page 11, paragraph [0179]), performing a vacuum heating immediately before a layer containing an organic compound is formed (annealing, Page 11, paragraph [0179]), forming the layer containing an organic compound (Page 11, paragraph [0179]), and forming a cathode (49b).

Regarding claim 25, Yamazaki discloses a method of fabricating a light emitting device having a light emitting element having an anode (43), a layer containing an organic compound (46, 47, 48), which is in contact with the anode, and a cathode (49b) which is in contact with the layer containing an organic compound, the method comprising the steps of forming an anode (43), forming an insulating material (44) for covering end portions of the anode, washing a surface of the anode with a porous sponge (Page 11, paragraphs [0136] and [0179]), forming a layer containing a first organic compound (45) which is in contact with the anode by a coating method (Page 8, paragraph [0137]), performing a vacuum heating immediately before a layer containing a second organic compound is formed (Page 8, paragraph [0137]), forming the layer containing a second organic compound by a vapor deposition method (Page 8, paragraph [0139]), and forming a cathode (49b).

Regarding claims 2 and 26, Yamazaki discloses a method wherein temperature of the vacuum heating is in the range from 100°C to 250°C (Page 12, paragraph [0184]).

Regarding claims 3 and 27, Yamazaki discloses a method wherein a step of performing the vacuum heating, a step of forming the layer containing an organic compound and a step of forming the cathode are in turn carried out in series without being in contact with an atmospheric air (Pages 11-12, paragraphs [0180-0181], [0185], [0195]).

Regarding claims 4 and 28, Yamazaki discloses a method wherein the vacuum heating has a degree of vacuum of $1x10^{-3}$ Pa to $1x10^{-6}$ Pa (Page 12, paragraph [0184]).

Regarding claims 5 and 29, Yamazaki discloses a method wherein a step of forming the cathode is performed by an electric resistance heating method or a sputtering method (Page 13, paragraph [0196]).

Regarding claims 6 and 30, Yamazaki discloses a method wherein the light emitting device is incorporated into one selected from the group consisting of a cellular phone, an electronic book, a display, a personal computer, a video camera, a mobile computer, a player using a recording medium, and a digital camera (Page 5, paragraph [0093]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 7-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (US 2003/0162314).

Regarding claim 7, Yamazaki discloses a method of fabricating a light emitting device having a light emitting element having an anode (43), a layer containing an organic compound (46, 47, 48), which is in contact with the anode, and a cathode (49b) which is in contact with the

layer containing an organic compound, the method comprising the steps of forming an anode (43), forming an insulating material (44) for covering end portions of the anode, washing a surface of the anode with a porous sponge (Page 11, paragraph [0179]), performing a vacuum heating immediately before a layer containing an organic compound is formed (annealing, Page 11, paragraph [0179]), forming the layer containing an organic compound (Page 11, paragraph [0179]), and forming a cathode (49b). Yamazaki teaches the step of washing a surface of the anode following the step of forming the insulating material instead of washing the surface of the anode subsequently the step of forming an anode. However, one skilled in the art would reasonable contemplate shifting the washing step at a stage prior or after deposition of the insulating material as a matter of design engineering, since such modification would not materially affect the sequence of the subsequent manufacturing process nor the structural performance of the device, as long as the anode surface is cleaned of impurities and/or reduced of surface defects before any deposition of the organic compound. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to shift the washing of the anode surface to a stage prior or after deposition of the insulating material as a matter of design engineering since such modification would not materially affect the subsequent manufacturing process nor the structural performance of the device, as long as it is performed prior deposition of the organic compound.

Regarding claim 13, Yamazaki discloses a method of fabricating a light emitting device having a light emitting element having an anode (43), a layer containing an organic compound (46, 47, 48), which is in contact with the anode, and a cathode (49b) which is in contact with the layer containing an organic compound, the method comprising the steps of forming an anode (43), forming an insulating material (44) for covering end portions of the anode, washing a surface of the anode with a porous sponge (Page 11, paragraph [0179]), performing a vacuum

heating immediately before a layer containing an organic compound is formed (annealing, Page 11, paragraph [0179]), forming the layer containing an organic compound (Page 11, paragraph [0179]), and forming a cathode (49b). Yamazaki fails to teach an initial step of washing a surface of the anode with a porous sponge subsequent the step of forming an anode. However, one skilled in the art concerned with the reduction of dot defects due to accumulation of dust and dirt on the anode's surface, during the required manufacturing stages as evidenced by Yamazaki (Page 11, paragraph [0179]), would reasonable contemplate repeatedly performing the step of washing the anode's surface at the end of a manufacturing stage, in order to significantly reduce such undesirable accumulation of dirt and dust.

Regarding claims 8 and 14, Yamazaki discloses a method wherein temperature of the vacuum heating is in the range from 100°C to 250°C (Page 12, paragraph [0184]).

Regarding claim 9 and 15, Yamazaki discloses a method wherein a step of performing the vacuum heating, a step of forming the layer containing an organic compound and a step of forming the cathode are in turn carried out in series without being in contact with an atmospheric air (Pages 11-12, paragraphs [0180-0181], [0185], [0195]).

Regarding claim 10 and 16, Yamazaki discloses a method wherein the vacuum heating has a degree of vacuum of $1x10^{-3}$ Pa to $1x10^{-6}$ Pa (Page 12, paragraph [0184]).

Regarding claim 11 and 17, Yamazaki discloses a method wherein a step of forming the cathode is performed by an electric resistance heating method or a sputtering method (Page 13, paragraph [0196]).

Regarding claim 12 and 18, Yamazaki discloses a method wherein the light emitting device is incorporated into one selected from the group consisting of a cellular phone, an electronic book, a display, a personal computer, a video camera, a mobile computer, a player using a recording medium, and a digital camera (Page 5, paragraph [0093]).

Claims 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (US 2003/0162314) in view of Yamagata et al. (US 2002/00110940).

Regarding claim 19, Yamazaki discloses a method of fabricating a light emitting device having a light emitting element having an anode (43), a layer containing an organic compound (46, 47, 48), which is in contact with the anode, and a cathode (49b) which is in contact with the layer containing an organic compound, the method comprising the steps of forming a TFT element (22), forming an anode (43) electrically connected to the TFT over the inorganic insulating film, forming an insulating material (44) for covering end portions of the anode, washing a surface of the anode with a porous sponge (Page 11, paragraph [0179]), performing a vacuum heating immediately before a layer containing an organic compound is formed (annealing, Page 11, paragraph [0179]), forming the layer containing an organic compound (Page 11, paragraph [0179]), and forming a cathode (49b). Yamazaki is silent in regards to the limitations of the step of forming an organic insulating layer film covering the TFT, and forming an inorganic insulating film comprising a material consisting of a silicon nitride film or a silicon oxide film over the organic insulating film by a sputtering method. However, in the same field of endeavor, Yamagata discloses a method of fabricating a light emitting device having a light emitting element comprising the steps of forming a TFT element, forming an organic insulating film (303, Fig. 3B) covering the TFT element in order to make the surface of the substrate flat, forming an inorganic insulating film comprising a material consisting of a silicon nitride film or a silicon oxide film over the organic insulating film by a sputtering method in order to prevent release of gas from the organic insulating film (Fig. 3C, Page 4, paragraphs [0071-0072]), and forming an anode. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the organic and inorganic insulating films

disclosed by Yamagata in the method of Yamazaki in order to make the surface of the substrate flat and further prevent release of gas from the organic insulating film.

Regarding claim 20, Yamazaki discloses a method wherein temperature of the vacuum heating is in the range from 100°C to 250°C (Page 12, paragraph [0184]).

Regarding claim 21, Yamazaki discloses a method wherein a step of performing the vacuum heating, a step of forming the layer containing an organic compound and a step of forming the cathode are in turn carried out in series without being in contact with an atmospheric air (Pages 11-12, paragraphs [0180-0181], [0185], [0195]).

Regarding claim 22, Yamazaki discloses a method wherein the vacuum heating has a degree of vacuum of $1x10^{-3}$ Pa to $1x10^{-6}$ Pa (Page 12, paragraph [0184]).

Regarding claim 23, Yamazaki discloses a method wherein a step of forming the cathode is performed by an electric resistance heating method or a sputtering method (Page 13, paragraph [0196]).

Regarding claim 24, Yamazaki discloses a method wherein the light emitting device is incorporated into one selected from the group consisting of a cellular phone, an electronic book, a display, a personal computer, a video camera, a mobile computer, a player using a recording medium, and a digital camera (Page 5, paragraph [0093]).

Claims 31-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (US 2003/0162314) in view of Yamazaki et al (US 6,815,723).

Regarding claim 31, Yamazaki discloses a method of fabricating a light emitting device having a light emitting element having an anode (43), a layer containing an organic compound (46, 47, 48), which is in contact with the anode, and a cathode (49b) which is in contact with the layer containing an organic compound, the method comprising the steps of forming an anode

(43), forming an insulating material (44) which covers an end part of the anode, washing a surface of the anode with a porous sponge (Page 11, paragraph [0179]), and forming the layer containing an organic compound (Page 11, paragraph [0179]), and forming a cathode (49b). Although, Yamazaki teaches the step of conducting a heating in an inactive atmosphere (UV radiation in vacuum, Page 5, paragraph [083]) or performing a vacuum heating immediately before a layer containing an organic compound is formed (annealing, Page 11, paragraph [0179]), Yamazaki fails to teach performing successively a heating step in an inactive atmosphere, a UV light irradiation step and a vacuum heating step. However, in the same field of endeavor, Yamazaki '723 discloses a method of fabricating a light emitting device having a light emitting element comprising the steps of conducting a heating in an inactive atmosphere, irradiating the anode with an ultraviolet light, and performing a vacuum heating immediately before a layer containing an organic compound is formed, thus impurities such as oxygen and moisture adsorbed on the substrate, and impurities such as oxygen and moisture within films formed on the substrate can thus be removed. In particular, EL materials are easily degraded by impurities such as oxygen and water, and therefore it is effective to perform heat treatment within a vacuum before evaporation (Column 13, lines 6-38). Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the combined heating/vacuum heating treatment disclosed by Yamazaki '723 in the method of Yamazaki in order to effectively remove impurities such as moisture and oxygen within the anode.

Regarding claim 32, Yamazaki discloses a method wherein the vacuum heating has a degree of vacuum of $1x10^{-3}$ Pa to $1x10^{-6}$ Pa (Page 12, paragraph [0184]).

Regarding claim 33, Yamazaki discloses a method wherein a step of forming the cathode is performed by an electric resistance heating method or a sputtering method (Page 13, paragraph [0196]).

Regarding claim 34, Yamazaki discloses a method of fabricating a light emitting device having a light emitting element having an anode (43), a layer containing an organic compound (46, 47, 48), which is in contact with the anode, and a cathode (49b) which is in contact with the layer containing an organic compound, the method comprising the steps of forming an anode (43), forming an insulating material (44) which covers an end part of the anode, washing a surface of the anode with a porous sponge (Page 11, paragraph [0179]), and forming the layer containing an organic compound (Page 11, paragraph [0179]), and forming a cathode (49b). Although, Yamazaki teaches the step of conducting a heating in an inactive atmosphere (UV radiation in vacuum, Page 5, paragraph [083]) or performing a vacuum heating immediately before a layer containing an organic compound is formed (annealing, Page 11, paragraph [0179]), Yamazaki fails to teach performing both a heating step followed by a UV irradiation step. However, in the same field of endeavor, Yamazaki '723 discloses a method of fabricating a light emitting device having a light emitting element comprising the steps of conducting a heating in an inactive atmosphere, irradiating the anode with an ultraviolet light and performing a vacuum heating immediately before a layer containing an organic compound is formed, thus impurities such as oxygen and moisture adsorbed on the substrate, and impurities such as oxygen and moisture within films formed on the substrate can thus be removed. In particular, EL materials are easily degraded by impurities such as oxygen and water, and therefore it is effective to perform heat treatment within a vacuum before evaporation (Column 13, lines 6-38). Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the combined heating/UV treatments disclosed by

Yamazaki '723 in the method of Yamazaki in order to effectively remove impurities such as moisture and oxygen within the anode.

Regarding claim 35, Yamazaki discloses a method wherein the vacuum heating has a degree of vacuum of $1x10^{-3}$ Pa to $1x10^{-6}$ Pa (Page 12, paragraph [0184]).

Regarding claim 36, Yamazaki discloses a method wherein a step of forming the cathode is performed by an electric resistance heating method or a sputtering method (Page 13, paragraph [0196]).

Response to Arguments

Applicant's arguments filed September 29 have been fully considered but they are not persuasive. See statement under Priority for further explanation.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariceli Santiago whose telephone number is (571) 272-2464. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

10/17/05

Mariceli Santiago
Primary Examiner
Art Unit 2879